

# SEQUENCE LISTING

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RASTELLI, LUCA

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<140> NOT ASSIGNED

<141> 2001-02-14

<150> 60/182,360

<151> 2000-02-14

<150> 60/191,261

<151> 2000-03-22

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<170> PatentIn Ver. 2.1

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<212> PRT
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Asp Gly Leu Met His Glu Val Val Asn Gly Leu Met Glu Arg Pro Asp
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Trp Glu Thr Ala Ile Gln Lys Pro Leu Cys Ser Leu Pro Ala Gly Ser
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Gly Asn Ala Leu Ala Ala Ser Leu Asn His Tyr Ala Gly Tyr Glu Gln
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<213> Mus musculus

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<212> PRT

<213> Mus musculus

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Trp Glu Thr Ala Ile Gln Lys Pro Leu Cys Ser Leu Pro Gly Gly Ser  
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Gln Leu Ala Tyr Leu Pro Val Gly Thr Val Ala Ser Lys Arg Pro Ala  
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Ser Thr Leu Val Gln Lys Gly Pro Val Asp Thr His Leu Val Pro Leu  
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Glu Glu Pro Val Pro Ser His Trp Thr Val Val Pro Glu Gln Asp Phe  
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<213> Homo sapiens

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Leu Thr Ser Arg Pro Lys His Leu Leu Val Phe Ile Asn Pro Phe Gly
          50                      55                      60

Gly Lys Gly Gln Gly Lys Arg Ile Tyr Glu Arg Lys Val Ala Pro Leu
  65                      70                      75                      80

Phe Thr Leu Ala Ser Ile Thr Thr Asp Ile Ile Gly Asn Lys Phe Tyr
          85                      90                      95

Val Asn Tyr Val Glu Val Ile Thr Glu His Ala Asn Gln Ala Lys Glu
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Thr Leu Tyr Glu Ile Asn Ile Asp Lys Tyr Asp Gly Ile Val Cys Val
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Gly Gly Asp Gly Met Phe Ser Glu Val Leu His Gly Leu Ile Gly Arg
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Thr Gln Arg Ser Ala Gly Val Asp Gln Asn His Pro Arg Ala Val Leu
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Val Pro Ser Ser Leu Arg Ile Gly Ile Ile Pro Ala Gly Ser Thr Asp
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Cys Val Cys Tyr Ser Thr Val Gly Thr Ser Asp Ala Glu Thr Ser Ala

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435

440

445

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&lt;212&gt; DNA

&lt;213&gt; Rattus sp.

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Leu Ile Leu Ile Arg Lys Cys Ser Arg Phe Asn Phe Leu Arg Phe Leu  
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Val Tyr Arg Val Lys Lys Phe Gln Phe Thr Ser Lys His Val Glu Asp  
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Asp Asp Asn Asp Leu Lys Glu Leu Glu Lys Gln Lys Phe Gly Gln Ile

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90

95

Cys Lys Asp Asn Pro Pro Cys Ala Cys Pro Thr Ser Arg Ser Ser Trp  
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<212> DNA

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Glu Val Ile Thr Glu His Ala Asn Gln Ala Lys Glu Thr Leu Tyr Glu  
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Ile Asn Ile Asp Lys Tyr Asp Gly Ile Val Cys Val Gly Gly Asp Gly  
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Met Phe Ser Glu Val Leu His Gly Leu Ile Gly Arg Thr Gln Arg Ser  
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Ala Gly Val Asp Gln Asn His Pro Arg Ala Val Leu Val Pro Ser Ser  
 100 105 110

Leu Arg Ile Gly Ile Ile Pro Ala Gly Ser Thr Asp Cys Val Cys Tyr  
 115 120 125

Ser Thr Val Gly Thr Ser Asp Ala Glu Thr Ser Ala Leu His Ile Val  
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Val Gly Asp Ser Leu Ala Met Asp Val Ser Ser Val His His Asn Ser  
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Thr Leu Leu Arg Tyr Ser Val Ser Leu Leu Gly Tyr Gly Phe Tyr Gly  
 165 170 175

Asp Ile Ile Lys Asp Ser Glu Lys Lys Arg Trp Leu Gly Leu Ala Arg  
 180 185 190

Tyr Asp Phe Ser Gly Leu Lys Thr Phe Leu Ser His His Cys Tyr Glu  
 195 200 205

Gly Thr Val Ser Phe Leu Pro Ala Gln His Thr Val Gly Ser Pro Arg  
 210 215 220

Asp Arg Lys Pro Cys Arg Ala Gly Cys Phe Val Cys Arg Gln Ser Lys  
 225 230 235 240

Gln Gln Leu Glu Glu Glu Gln Lys Lys Ala Leu Tyr Gly Leu Glu Ala  
 245 250 255

Ala Glu Asp Val Glu Glu Trp Gln Val Val Cys Gly Lys Phe Leu Ala  
 260 265 270

Ile Asn Ala Thr Asn Met Ser Cys Ala Cys Arg Arg Ser Pro Arg Gly  
 275 280 285

Leu Ser Pro Ala Ala His Leu Gly Asp Gly Ser Ser Asp Leu Ile Leu  
 290 295 300

Ile Arg Lys Cys Ser Arg Phe Asn Phe Leu Arg Phe Leu Ile Arg His  
 305 310 315 320

Thr Asn Gln Gln Asp Gln  
 325

<210> 12

<211> 453

<212> PRT

<213>\* Saccharomyces cerevisiae

<400> 12

Leu Tyr Ile Asp Tyr Lys Pro His Ser Ser Ser His Leu Lys Glu Glu  
 1 5 10 15

Asp Asp Leu Val Glu Glu Ile Leu Lys Arg Ser Tyr Lys Asn Thr Arg  
 20 25 30

Arg Asn Lys Ser Ile Phe Val Ile Ile Asn Pro Phe Gly Gly Lys Gly  
 35 40 45

Lys Ala Lys Lys Leu Phe Met Thr Lys Ala Lys Pro Leu Leu Leu Ala  
 50 55 60

Ser Arg Cys Ser Ile Glu Val Val Tyr Thr Lys Tyr Pro Gly His Ala  
 65 70 75 80

Ile Glu Ile Ala Arg Glu Met Asp Ile Asp Lys Tyr Asp Thr Ile Ala



340	345	350
Phe Phe Pro Ala Ala Leu Pro Ser Asp Gly Thr Met Asp Met Val Ile		
355	360	365
Thr Asp Ala Arg Thr Ser Leu Thr Arg Met Ala Pro Ile Leu Leu Gly		
370	375	380
Leu Asp Lys Gly Ser His Val Leu Gln Pro Glu Val Leu His Ser Lys		
385	390	395
Ile Leu Ala Tyr Lys Ile Ile Pro Lys Leu Gly Asn Gly Leu Phe Ser		
	405	410
		415
Val Asp Gly Glu Lys Phe Pro Leu Glu Pro Leu Gln Val Glu Ile Met		
	420	425
		430
Pro Arg Leu Cys Lys Thr Leu Leu Arg Asn Gly Arg Tyr Val Asp Thr		
	435	440
		445
Asp Phe Asp Ser Met		
450		
<210> 13		
<211> 436		
<212> PRT		
<213> Saccharomyces cerevisiae		
<400> 13		
Leu Leu Ile Asp His Val Ser Arg Lys Ser Arg Ala Asn Thr Gly Glu		
1	5	10
		15
Glu Asn Ile Ser Ser Gly Thr Val Glu Glu Ile Leu Glu Lys Ser Tyr		
	20	25
		30
Glu Asn Ser Lys Arg Asn Arg Ser Ile Leu Val Ile Ile Asn Pro His		
	35	40
		45
Gly Gly Lys Gly Thr Ala Lys Asn Leu Phe Leu Thr Lys Ala Arg Pro		
50	55	60
Ile Leu Val Glu Ser Gly Cys Lys Ile Glu Ile Ala Tyr Thr Lys Tyr		
65	70	75
		80
Ala Arg His Ala Ile Asp Ile Ala Lys Asp Leu Asp Ile Ser Lys Tyr		
	85	90
		95

Asp Thr Ile Ala Cys Ala Ser Gly Asp Gly Ile Pro Tyr Glu Val Ile	100	105	110
Asn Gly Leu Tyr Arg Arg Pro Asp Arg Val Asp Ala Phe Asn Lys Leu	115	120	125
Ala Val Thr Gln Leu Pro Cys Gly Ser Gly Asn Ala Met Ser Ile Ser	130	135	140
Cys His Trp Thr Asn Asn Pro Ser Tyr Ala Ala Leu Cys Leu Val Lys	145	150	155
Ser Ile Glu Thr Arg Ile Asp Leu Met Cys Cys Ser Gln Pro Ser Tyr	165	170	175
Met Asn Glu Trp Pro Arg Leu Ser Phe Leu Ser Gln Thr Tyr Gly Val	180	185	190
Ile Ala Glu Ser Asp Ile Asn Thr Glu Phe Ile Arg Trp Met Gly Pro	195	200	205
Val Arg Phe Asn Leu Gly Val Ala Phe Asn Ile Ile Gln Gly Lys Lys	210	215	220
Tyr Pro Cys Glu Val Phe Val Lys Tyr Ala Ala Lys Ser Lys Lys Glu	225	230	240
Leu Lys Val His Phe Leu Glu Asn Lys Asp Lys Asn Lys Gly Cys Leu	245	250	255
Thr Phe Glu Pro Asn Pro Ser Pro Asn Ser Ser Pro Asp Leu Leu Ser	260	265	270
Lys Asn Asn Ile Asn Asn Ser Thr Lys Asp Glu Leu Ser Pro Asn Phe	275	280	285
Leu Asn Glu Asp Asn Phe Lys Leu Lys Tyr Pro Met Thr Glu Pro Val	290	295	300
Pro Arg Asp Trp Glu Lys Met Asp Ser Glu Leu Thr Asp Asn Leu Thr	305	310	315
Ile Phe Tyr Thr Gly Lys Met Pro Tyr Ile Ala Lys Asp Thr Lys Phe	325	330	335
Phe Pro Ala Ala Leu Pro Ala Asp Gly Thr Ile Asp Leu Val Ile Thr	340	345	350

Asp Ala Arg Ile Pro Val Thr Arg Met Thr Pro Ile Leu Leu Ser Leu  
355 360 365

Asp Lys Gly Ser His Val Leu Glu Pro Glu Val Ile His Ser Lys Ile  
370 375 380

Leu Ala Tyr Lys Ile Ile Pro Lys Val Glu Ser Gly Leu Phe Ser Val  
385 390 395 400

Asp Gly Glu Lys Phe Pro Leu Glu Pro Leu Gln Val Glu Ile Met Pro  
405 410 415

Met Leu Cys Lys Thr Leu Leu Arg Asn Gly Arg Tyr Ile Asp Thr Glu  
420 425 430

Phe Glu Ser Met  
435

<210> 14

<211> 380

<212> PRT

<213> Schizosaccharomyces pombe

<400> 14

Cys Trp Val Asp Phe Val Glu Asn Ser Asp Gln Phe Cys Glu Tyr Leu  
1 5 10 15

Leu Asp Val Ala Tyr Lys Gly Ile Lys Arg Ser Arg Arg Phe Ile Val  
20 25 30

Phe Ile Asn Pro His Gly Gly Lys Gly Lys Ala Lys His Ile Trp Glu  
35 40 45

Ser Glu Ala Glu Pro Val Phe Ser Ser Ala His Ser Ile Cys Glu Val  
50 55 60

Val Leu Thr Arg Arg Lys Asp His Ala Lys Ser Ile Ala Lys Asn Leu  
65 70 75 80

Asp Val Gly Ser Tyr Asp Gly Ile Leu Ser Val Gly Gly Asp Gly Leu  
85 90 95

Phe His Glu Val Ile Asn Gly Leu Gly Glu Arg Asp Asp Tyr Leu Glu  
100 105 110

Ala Phe Lys Leu Pro Val Cys Met Ile Pro Gly Gly Ser Gly Asn Ala  
115 120 125



Phe Ser Tyr Asn Ala Thr Gly Gln Leu Lys Pro Ala Leu Thr Ala Leu  
 130 135 140  
 -  
 Glu Ile Leu Lys Gly Arg Pro Thr Ser Phe Asp Leu Met Thr Phe Glu  
 145 150 155 160  
 Gln Lys Gly Lys Lys Ala Tyr Ser Phe Leu Thr Ala Asn Tyr Gly Ile  
 165 170 175  
 Ile Ala Asp Cys Asp Ile Gly Thr Glu Asn Trp Arg Phe Met Gly Glu  
 180 185 190  
 Asn Arg Ala Tyr Leu Gly Phe Phe Leu Arg Leu Phe Gln Lys Pro Asp  
 195 200 205  
 Trp Lys Cys Ser Ile Glu Met Asp Val Val Ser Ser Asp Arg Thr Glu  
 210 215 220  
 Ile Lys His Met Tyr Glu Lys Ser Lys Asn Leu Ala Pro Met Ser Glu  
 225 230 235 240  
 Ser Ser Asp Ser Asp Lys Thr Val Ser Thr Ser Pro Glu Ser His Leu  
 245 250 255  
 Leu Thr Phe Glu Ile Asn Asp Leu Ser Ile Phe Cys Ala Gly Leu Leu  
 260 265 270  
 Pro Tyr Ile Ala Pro Asp Ala Lys Met Phe Pro Ala Ala Ser Asn Asp  
 275 280 285  
 Asp Gly Leu Ile Asp Val Val Ile Val Tyr Ser Lys Gln Phe Arg Lys  
 290 295 300  
 Ser Leu Leu Ser Met Phe Thr Gln Leu Asp Asn Gly Gly Phe Tyr Tyr  
 305 310 315 320  
 Ser Lys His Leu Asn Tyr Tyr Lys Val Arg Ser Phe Arg Phe Thr Pro  
 325 330 335  
 Val Asn Thr Gly Lys Arg His Tyr Phe Ala Leu Asp Gly Glu Ser Tyr  
 340 345 350  
 Pro Leu Glu Pro Phe Glu Cys Arg Val Ala Pro Lys Leu Gly Thr Thr  
 355 360 365  
 Leu Ser Pro Val Ala Gly Phe Gln Leu Leu Asp Ile  
 370 375 380

<210> 15  
 <211> 415  
 <212> PRT  
 <213> Caenorhabditis elegans

<400> 15  
 Cys Arg Ser Asp Ala Glu Glu Asn Glu Gln Leu Thr Ser Val Ile Leu  
   1                  5                  10                  15  
 Ser Arg Lys Pro Pro Pro Gln Glu Gln Cys Arg Gly Asn Leu Leu Val  
           20                  25                  30  
 Phe Ile Asn Pro Asn Ser Gly Thr Gly Lys Ser Leu Glu Thr Phe Ala  
       35                  40                  45  
 Asn Thr Val Gly Pro Lys Leu Asp Lys Ser Leu Ile Arg Tyr Glu Val  
       50                  55                  60  
 Val Val Thr Thr Gly Pro Asn His Ala Arg Asn Val Leu Met Thr Lys  
   65                  70                  75                  80  
 Ala Asp Leu Gly Lys Phe Asn Gly Val Leu Ile Leu Ser Gly Asp Gly  
           85                  90                  95  
 Leu Val Phe Glu Ala Leu Asn Gly Ile Leu Cys Arg Glu Asp Ala Phe  
       100                  105                  110  
 Arg Phe Phe Pro Thr Leu Pro Ile Gly Ile Val Pro Ser Gly Ser Gly  
       115                  120                  125  
 Asn Gly Leu Leu Cys Ser Val Leu Ser Lys Tyr Gly Thr Lys Met Asn  
       130                  135                  140  
 Glu Lys Ser Val Met Glu Arg Ala Leu Glu Ile Ala Thr Ser Pro Thr  
   145                  150                  155                  160  
 Ala Lys Ala Glu Ser Val Ala Leu Tyr Ser Val Lys Thr Asp Asn Gln  
           165                  170                  175  
 Ser Tyr Ala Ser Phe Leu Ser Ile Gly Trp Gly Leu Met Ala Asp Ile  
       180                  185                  190  
 Asp Ile Asp Ser Glu Lys Trp Arg Lys Ser Leu Gly His His Arg Phe  
       195                  200                  205  
 Thr Val Met Gly Phe Ile Arg Ser Cys Asn Leu Arg Ser Tyr Lys Gly

210                      215                      220  
 Arg Leu Thr Tyr Arg Pro Tyr Lys Pro Lys Gly Phe His Pro Ser Ser  
 225                      230                      235                      240  
 Asn Val Phe Ser Val Tyr Glu Lys Thr Thr Gln Gln Arg Ile Asp Asp  
 245                      250                      255  
 Ser Lys Val Lys Thr Asn Gly Ser Val Ser Asp Ser Glu Glu Glu Thr  
 260                      265                      270  
 Met Glu Thr Lys Phe Gln Asn Trp Thr Leu Pro Asp Ser Asp Glu Thr  
 275                      280                      285  
 Leu Ala Val Gly Ser Ser Asp Leu Glu Glu Thr Val Val Ile Glu Asp  
 290                      295                      300  
 Asn Phe Val Asn Ile Tyr Ala Val Thr Leu Ser His Ile Ala Ala Asp  
 305                      310                      315                      320  
 Gly Pro Phe Ala Pro Ser Ala Lys Leu Glu Asp Asn Arg Ile His Leu  
 325                      330                      335  
 Ser Tyr Ile Leu Trp Lys Asp Ile Gly Thr Arg Val Asn Ile Ala Lys  
 340                      345                      350  
 Tyr Leu Leu Ala Ile Glu His Glu Thr His Leu Asp Leu Pro Phe Val  
 355                      360                      365  
 Lys His Val Glu Val Ser Ser Met Lys Leu Glu Val Ile Ser Glu Gly  
 370                      375                      380  
 Ser His Val Val Leu Asp Gly Glu Val Val Asp Thr Lys Thr Ile Glu  
 385                      390                      395                      400  
 Val Ala Ser Thr Lys Asn His Ile Ser Val Phe Ser Ser Thr Ala  
 405                      410                      415